Environmental Assessment

for the

Construction of a 138-k-V Transmission Line on Eielson AFB Property

354th Fighter Wing
Eielson Air Force Base, Alaska
December 2004

Report Documentation Page

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FINDING OF NO SIGNIFICANT IMPACT (FONSI) and FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA) for the Construction of a 138-kV Transmission Line by Golden Valley Electric Association on Eielson Land

Introduction

Eielson is located on lands that are bordered by, and in some cases incorporate, major public infrastructure such as highways, railroads, and utility corridors. One such utility corridor is the Golden Valley Electric Association's (GVEA) 69-kV power line corridor that runs from its North Pole Power Generating Plant (NPPGP) in North Pole, Alaska to the Carney Substation next to Pump Station 8 of the Trans-Alaska Pipeline. Due to age and limited capacity of the transmission line, a new 138-kV line is being proposed for construction that will follow a route through Eielson land along its western border.

Description of the Proposed Action

The proposed action will result in the construction of a 138-kV electrical transmission from the NPPGP to the Carney substation 22 miles to the southeast. The corridor will be 100-feet wide and traverse approximately 8.5 miles of Eielson land. Power line towers will be a double pole design approximately 75-feet in height.

Alternatives to the Proposed Action

An alternatives analysis conducted by GVEA resulted in the identification of six alternative routes. These routes were considered along with the proposed action and a thorough analysis of their potential impacts were documented in an environmental assessment (EA) prepared by GVEA.

No Action Alternative

The no action alternative would result in continued operation of existing facilities including the existing 69-kV line. The lack of a new line would put approximately 6,500 customers at risk of increased outages and longer periods of down time. In addition, new customer demand would not be met.

Environmental Impacts of the Proposed Action

Wetlands

Approximately 45 acres of wetlands will be used as the corridor to construct the 138-kV line. Relatively minor impacts will occur to most of these wetlands, with most impacts resulting from minor clearing of vegetation. Construction of the transmission line towers will impact approximately 0.025 acres of wetlands. These impacts would result from the excavation of holes for placement of the tower poles.

Biological Resources

Impacts to biological resources from the proposed project are expected to be minimal. The power line will require the clearing of a 100-foot right-of-way. This clearing will likely enhance the right-of-way as browse habitat, especially for moose and snowshoe hare.

Threatened or Endangered Species

There are no threatened or endangered species in the project area. The project area is not suitable habitat for any of the threatened or endangered species occurring in the Alaskan interior.

Historical or Cultural Resources

Eielson base lands have been surveyed for the presence of historical and cultural resources and no resources eligible for listing on the National Historic Register were identified. In the event that historic or cultural sites are discovered during project construction, activities will be halted and a professional archeologist will evaluate the find before further construction would commence.

Air Quality

The proposed action will result in minor air quality impacts during construction due to fugitive dust and machinery exhaust. Such impacts will be highly localized and temporary in nature.

Mitigation

No mitigation was required by state and federal agencies for any aspect of the proposed work.

Public Comment

No public comment was received from the public noticing of the Draft EA/FONSI for this project.

Findings

Pursuant to the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) implementing regulations for NEPA (40 CFR Part 1500-1508), and Air Force Instruction (AFI) 32-7061, *Environmental Impact Analysis Process* (32 CFR Part 989), the Air Force has conducted an EA for the construction of a 138-kV transmission line on Eielson land. This FONSI/FONPA has been developed pursuant to information provided in the accompanying EA.

Finding of No Practicable Alternative: Eielson is an Air Force facility that operates, maintains, and trains combat forces in close air support of military operations worldwide. Due to its location relative to other public and private lands and associated infrastructure,

it is important to support community interests when possible. Taking all the environmental, economic, and other pertinent factors into account, pursuant to Executive Order 11988 on Floodplain Management, and Executive Order 11990 on Protection of Wetlands, the authority delegated by SAFO 780-1, and taking into consideration the submitted information, I find that there is no practicable alternative to this action and the proposed action includes all practical measures to minimize harm to the environment.

Finding of No Significant Impact: Based on this Environmental Assessment (EA), which was conducted in accordance with the requirements of NEPA, CEQ, and Air Force Instructions, I conclude that the use of base lands to build a new 138-kV transmission line will not result in significant impacts to the environment. I also find that the preparation of an Environmental Impact Statement (EIS) is not warranted.

Victor E. Renuart Jr.

VICTOR E. RENUART, JR.
Lieutenant General
Vice Commander, Pacific Air Forces

FEB 01 2005
Date

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Environmental Assessment
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1.0 Purpose and Need for Action

Section 1.0 provides a description of the purpose and need for the proposed action.

1.1 Background and Objectives for the Proposed Action

1.1.1 The 354 FW directs operations, training, and support for F-16CG and A/OA-10 precision weapons systems. They also oversee operations and training for Air Liaison Officer (ALO) and Tactical Air Control Party (TAC-P) combat teams that support ground operations through the lethal application of airpower. The 354 FW provides expeditionary combat ready forces for worldwide employment across the full spectrum of air and space operations. The 168th Air Refueling Wing (ARW) is the primary tanker unit of the Pacific Rim, annually transferring over 17 million pounds of fuel in flight to predominantly active duty aircraft.

1.1.2 Eielson is located on lands that are bordered by, and in some cases incorporate, major public infrastructure such as highways, railroads, and utility corridors. One such utility corridor is the Golden Valley Electric Association's (GVEA) power line corridor that runs from its North Pole Power Generating Plant (NPPGP) next to the Flint Hills Resources Refinery in North Pole, Alaska to the Carney Substation next to Pump Station 8 of the Trans-Alaska Pipeline.

1.1.3 The existing GVEA utility corridor contains a 69-kV transmission line that provides power from the NPPGP to the Carney Substation. This line was built in 1965 and its lines and pole structures are in fair condition, but are experiencing increasing levels of maintenance and substantial losses of power along the line. A failure of the existing line, or the transformer at the Carney Substation, would cause extended outages. In addition, the line would not be able to handle the increases in demand projected to occur for the area.

1.1.4 GVEA has studied projected needs for power consumption along the existing 69-kV corridor. It is likely that several new projects could require additional power generation capacity from GVEA's existing power grid. These include the Trans-Alaska Pipeline (TAPS) Pump Station No. 9 electrification, the National Missile Defense Project, the Pogo Mine Project, the Cold Weather Weapons Research Station, and electrical service in support of a natural gas pipeline system. In addition, Eielson has a contract with GVEA to provide electrical service up to 10 MW. Also, if Eielson privatizes its base power generation, it is possible that the new owner would find getting power from GVEA would be cheaper than generating it themselves. All of these increased power needs could increase the current load by 55 MW or more. To address this, GVEA is proposing to construct a new 138-kV transmission line that would initially follow the existing line's

route, but once on Eielson property it would run along its western boundary adjacent to an existing service line. The project proposed by GVEA would serve the following purposes:

- Meet the future increases in regional power requirements;
- Improve system reliability by minimizing the effects of transmission line transformer outages; and
- Reduce transmission line losses.

1.2 Location of the Proposed Action

Eielson is located in the Tanana River Valley on a low, relatively flat, floodplain terrace that is approximately 2 miles north of the active river channel. Other communities near Eielson include North Pole and Moose Creek to the north and Salcha to the south. Base lands include 19,790 contiguous acres bounded on the west by the Richardson Highway and on the north and east by Army's Yukon Training Area. To the south, the community of Salcha borders Eielson. To the west is a mixture of low-density residential areas and farmland known as the Eielson Farm Project.

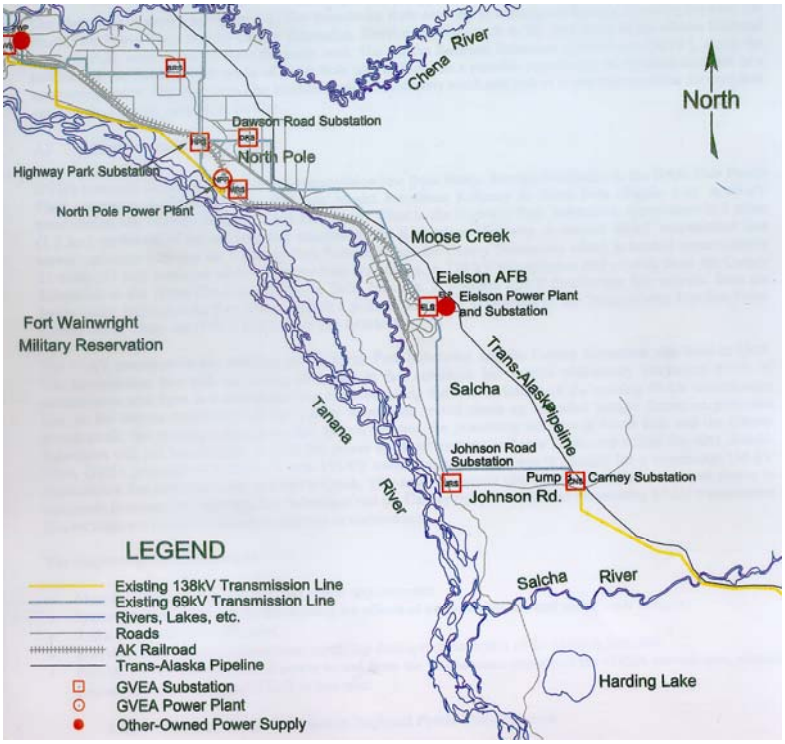

Figure 1 –Project Area Vicinity Map

1.3 Proposed Action

1.3.1 GVEA is an electric cooperative that provides electric power to approximately 90,000 residents at more than 37,700 service locations along the interior Alaska highway corridors from Cantwell to Fairbanks to Delta Junction. Their generating capability is 224 megawatts (MW), which is generated by five separate facilities. GVEA has been

conducting system upgrades to meet the increasing demands that growth in the area has required. Included in these upgrades is the construction of a 138-kV transmission line between the GVEA North Pole generation plant and the Carney Substation that is located approximately 22 miles southeast of North Pole near Pump Station

1.3.2 The transmission line would follow the alignment of an existing service line that traverses Eielson property along the west side of the Richardson Highway. The new line would have a 100-foot-wide right-of-way and would be situated immediately adjacent to the existing service line for most of the length of the project.

1.4 Alternatives to the Proposed Action

An alternatives analysis was conducted and several alternatives were considered. The only alternatives carried forward for full analysis, however, were those that involved construction of a new transmission line. Six alternative routes for construction of the 138-kV transmission line were identified. These routes are shown in **Figure 2.**

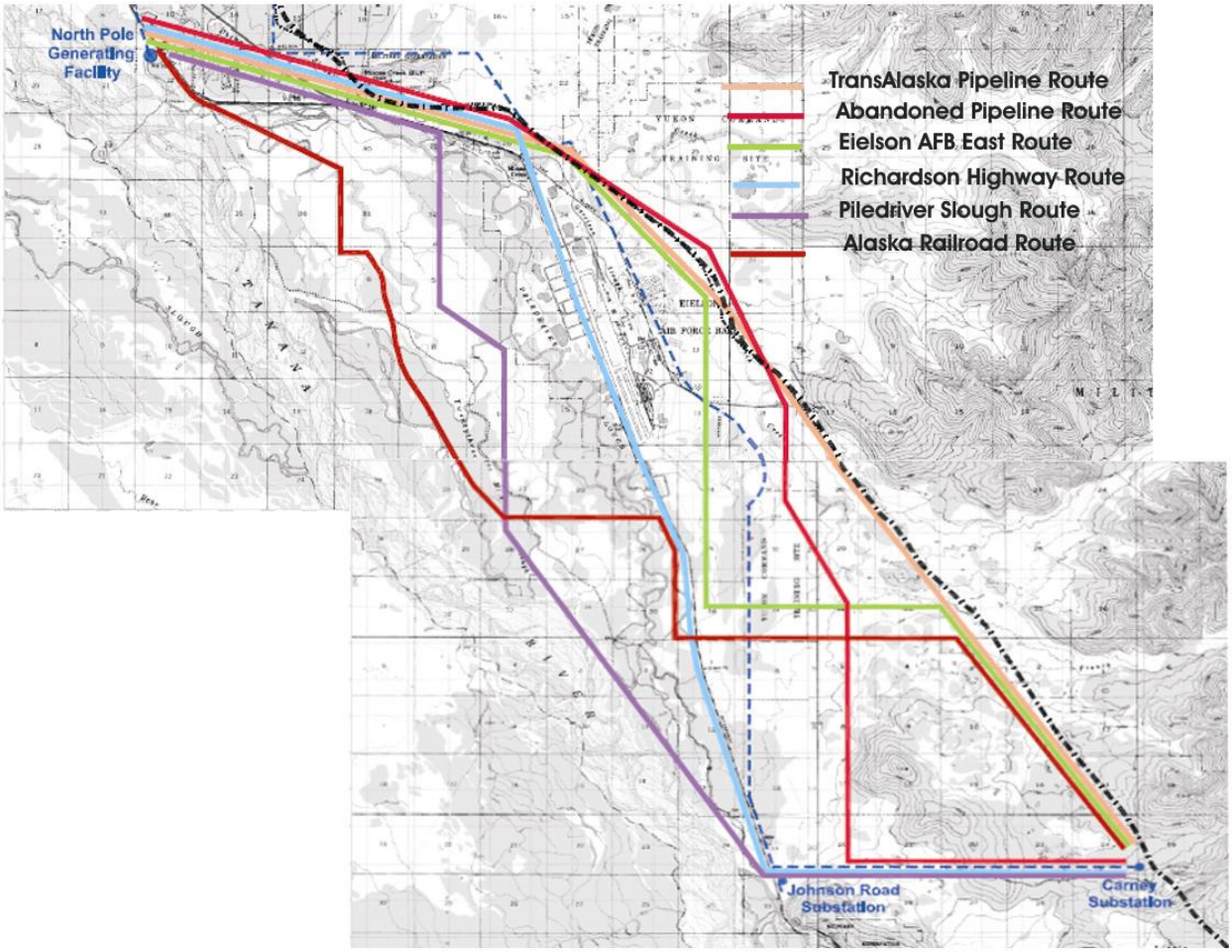

Figure 2 – Alternative Transmission Line Routes

1.5 No Action Alternative

Under this alternative no new 138-kV line would be constructed between North Pole and the Carney Substation. The lack of a new line would put approximately 6,500 customers at risk of increased outages and longer periods of down time. In addition, new customer demand would not be able to be met.

1.6 NEPA Actions That Influence This Assessment

1.6.1 During 2003, GVEA prepared an EA that addressed the proposed construction of the 138-kV line from North Pole to the Carney Substation. This EA covered the entire route and included all lands potentially impacted, not just the portion on Eielson property. GVEA's EA was public noticed and a FONSI was signed. In the FONSI the selected course of action was to follow the route through Eielson lands that is currently being addressed as the proposed action in this EA.

1.6.2 The EA and FONSI document prepared by Golden Valley was done in accordance with the National Environmental Policy Act. Since it provided a thorough environmental analysis of all potential alternative routes, it is the position of this document that it will not duplicate that effort in this EA. This is allowed for in the Council on Environmental Quality Regulations, 40 CFR Part 1502.20 (Tiering) and 40 CFR Part 1502.21 (Incorporation by reference). Tiering is when a current EA is tiered to a previously completed related EA, to "…eliminate repetitive discussions of the same issues and focus on the actual issues ripe for decision." Thus, discussions of resource descriptions and impacts will be restricted to those areas affected by the proposed action and information relative to alternatives reviewed by the previously prepared GVEA EA will be incorporated by reference. A copy of GVEA's EA can be found in **Appendix A**.

1.7 Decision to be Made

1.7.1 As required by 32 C.F.R. Part 989, the *Environmental Impact Analysis Process* is used to determine the environmental consequences of the proposed construction of a 138-kV electrical transmission line on Eielson lands. The proposed action will be discussed in detail in Chapter 2.0 of this document. A description of the resources associated with the areas affected by the proposed action will be provided in Chapter 3.0 and the impacts that could result from it are discussed in Chapter 4.0.

1.7.2 Based on the evaluation of impacts in the EA, a Finding Of No Significant Impact (FONSI) will be published if there is a finding of no significant environmental impacts for the proposed action. If it is determined that the proposed action will have significant environmental impacts, other alternatives will be considered for which impacts may not reach the threshold of significance.

1.7.3 The EA, a draft FONSI (if applicable), and all other appropriate planning documents will be provided to the Pacific Air Forces (PACAF) Vice Commander, the decision maker, for review and consideration. If, based on a review by the decision maker of all pertinent

information, a FONSI is proposed, a notice of intent (NOI) will be published in accordance with 40 CFR 1506.6. All interested parties will have 30 days to comment on the decision to the Air Force. If, at the end of the 30-day public comment period, no substantive comments are received, the decision maker will sign the FONSI.

1.7.4 Two Executive Orders (EOs), 11988 (Floodplain Management) and 11990 (Protection of Wetlands), require the heads of federal agencies to find that there is no practicable alternative before the agency takes certain actions impacting wetlands or floodplains. To address this requirement, the Secretary of the Air Force's designated agent, HQ PACAF/CV will sign a document that addresses the issues of wetlands and floodplains that may be associated with actions the Air Force proposes to take. This document, known as a Finding Of No Practicable Alternative (FONPA) will state which alternative, the proposed action, one of the alternate routes, or the no action alternative will be selected as the appropriate course of action. The FONPA will be combined with the FONSI into one document.

1.8 Project Scoping/Significant Issues

Extensive scoping was conducted for the original EA prepared by GVEA. This scoping involved all interested state and federal agencies as well as affected landowners. Eielson participated extensively in the scoping process. Information regarding the scoping process conducted by GVEA can be found in Section 1.4 of GVEA's document. No further scoping was conducted by Eielson as part of this current EA process.

1.9 Federal and State Permits or Licenses Needed to Implement the Project

The proposed action will require a Section 404 wetlands permit from the Army Corps of Engineers. Nationwide permit #12, *Utility Line Activities*, will be used to authorize the proposed activities.

2.0 Description of the Proposed Action and Alternatives

Section 2.0 provides a description of the proposed action and alternatives considered to achieve the purpose and need described in Section 1.0.

2.1 Proposed Action – Construct a 138-kV electrical transmission line across Eielson lands

2.1.1 The proposed action would result in the construction of 22-mile long 138-kV transmission line from North Pole, Alaska to the Carney substation. A 12-mile long portion of the line would traverse Eielson lands along its western perimeter. A major portion of the line would run adjacent to an existing service line (see **Figures 3 and 4**).

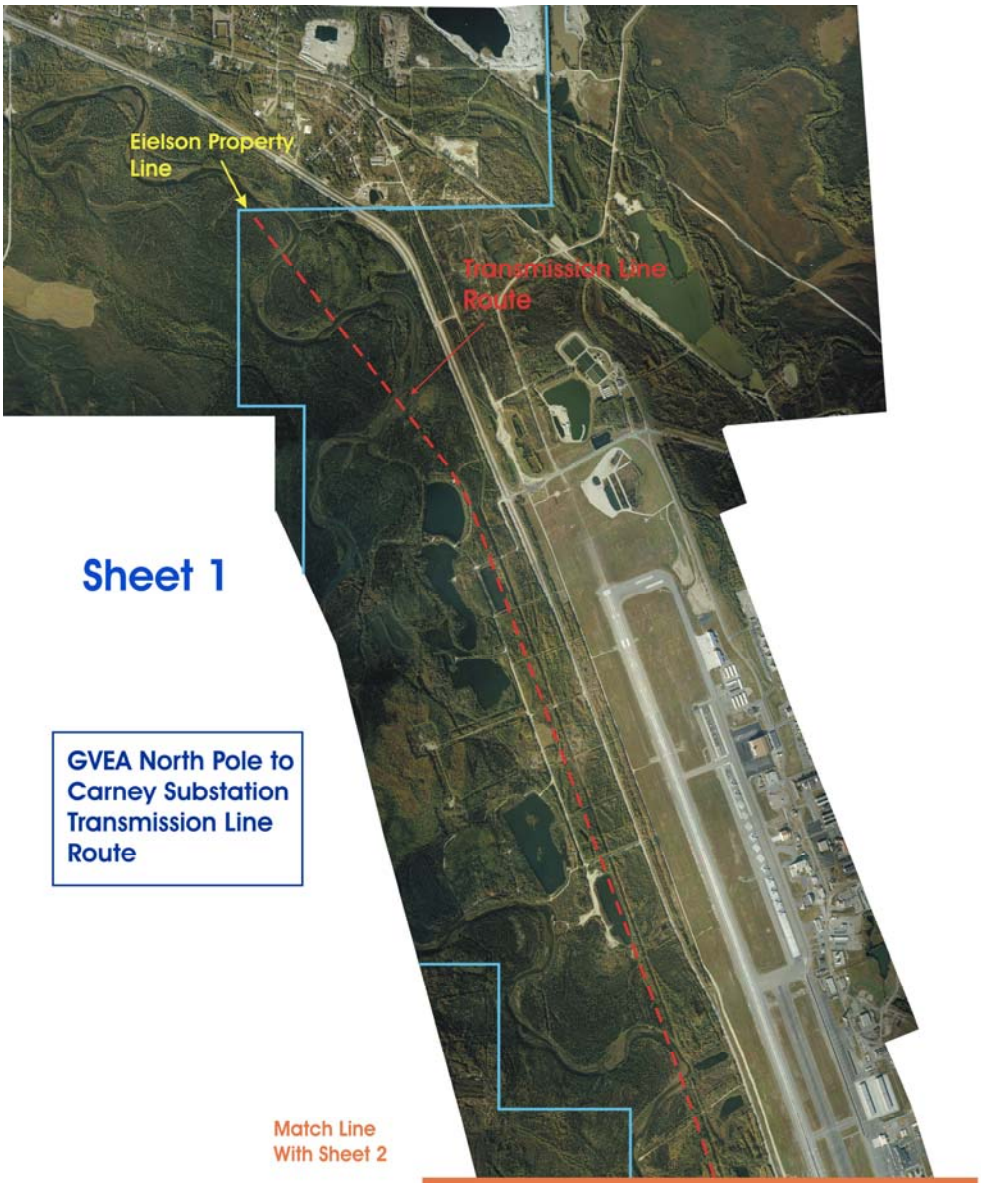

Figure 3 – Northern Portion of Transmission Line Route on Eielson Lands

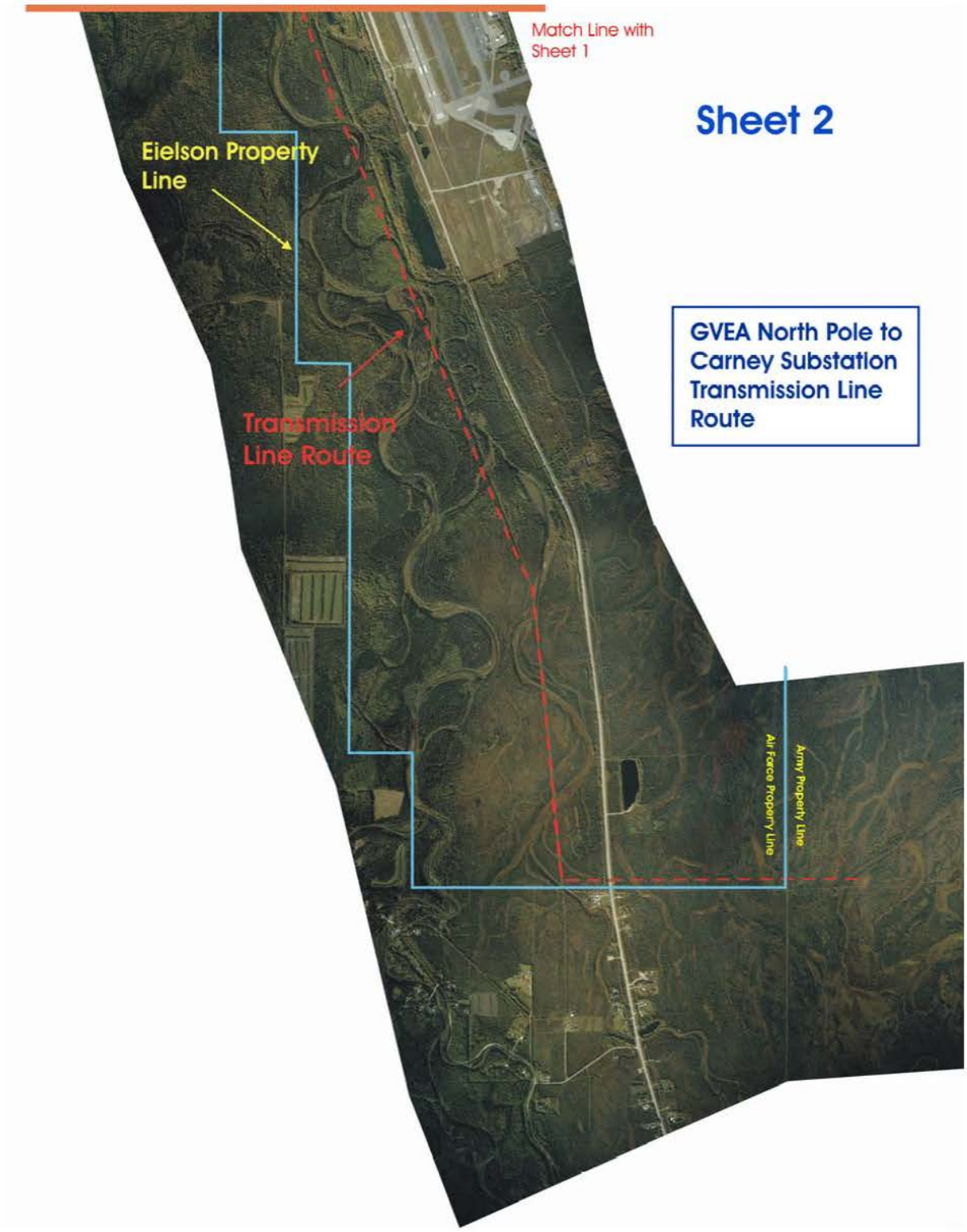

Figure 4 – Southern Portion of Transmission Line Route on Eielson Lands

2.1.2 The transmission line would be a three-phased line with a voltage of 138-kV. The line would consist of three steel-reinforced cables, one for each phase. The lines would be supported on wood-poles configured in an H-frame structure. The poles would be

approximately 75-feet in height. At the top the pole structure would be 39-feet wide and at its base, 19-feet, six inches wide (**Figure 5**). Construction of the line will require a 100-foot wide right-of-way. Completion of the line would take approximately 18 months and would include the following activities:

- Surveying;
- Access road construction and/or upgrading;
- Structure site clearing/grading;
- Construction materials hauling;
- Foundation excavation;
- Structure assembly/erection;
- Ground wire and conductor stringing; and
- Right-of-way cleanup and restoration.

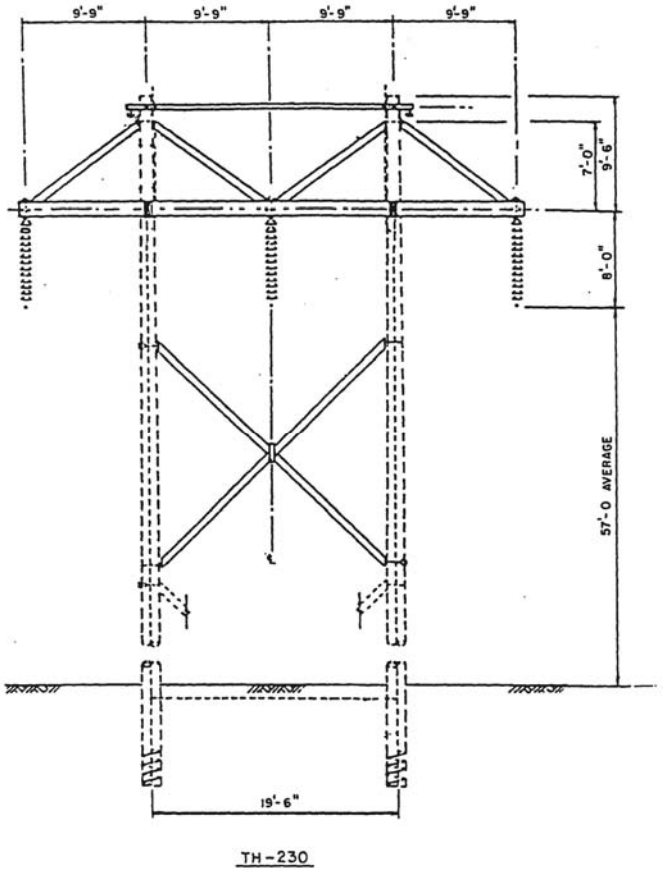

Figure 5 – Utility Pole Design

2.1.3 In areas where utility pole installation will occur in wetlands, construction activities will be restricted to winter months when ground and surface water is frozen, and minimal impacts would result. Once the line is constructed, maintenance of the line would require annual ground patrols, which in upland areas would be by motorized vehicle and in wetland areas by foot if done in the summer. Maintenance could include repairing

damaged conductors, inspecting and repairing wooden towers, and replacing damaged and broken insulators.

2.2 Alternative Routes

As part of the original scoping and planning process conducted by GVEA during their EA process, six alternate corridors were identified as potential routes for construction of the new 138-kV transmission line. These routes are identified in **Figure 5** and their descriptions are as follows:

Trans-Alaska Pipeline Corridor (Route 1)

This corridor begins at the generating facilities at North Pole and continues to the east-southeast to the south side of Moose Creek and the TAPS. The corridor then continues south-southeast along the TAPS ROW to the Carney Substation.

Abandoned Pipeline Corridor (Route 2)

This corridor begins at the generating facilities at North Pole and continues to the east-southeast to the Alaska Railroad. The corridor then continues to the south-southeast along the Alaska Railroad for approximately 2.5 miles, where it breaks away from the railroad ROW and continues along the abandoned military pipeline ROW. The corridor then continues to follow the abandoned pipeline ROW to Johnson Road, and then follows Johnson Road to the Carney Substation.

Eielson Air Force Base East Corridor (Route 3)

This corridor initially follows the same route as the TAPS corridor. The corridor continues south-southeast along the TAPS ROW to the northern boundary of the Small Arms Impact Area on Eielson, where it breaks off and travels to the south of the Fort Wainwright Military Reservation land. The corridor goes 2 miles to the east, where it merges back into the proposed TAPS corridor and follows the pipeline corridor to the Carney Substation.

Richardson Highway Corridor (Route 4)

This corridor begins at the generating facilities at North Pole and continues to the east-southeast to the Richardson Highway. The corridor follows the Richardson Highway to the junction of Johnson Road. At this junction, the corridor turns to the east and travels along Johnson Road to the Carney Substation.

Tanana River/Piledriver Slough Corridor (Route 5)

This corridor begins at the generating facilities at North Pole and continues to the south-southwest along the Old Valdez Trail to the south for approximately 4 miles. The corridor then continues along the Old Valdez Trail to the junction with the Richardson Highway, where it turns east along Johnson Road to the Carney Substation.

Alaska Railroad ROW Corridor (Route 6)

This corridor begins at the generating facilities at North Pole and continues to the south-southeast to the Old Valdez Trail, following it to the junction of the Richardson Highway where it then turns east for two miles where it merges into the TAPS Corridor following it to the Carney Substation.

2.3 No Action Alternative

Under this alternative no new 138-kV line would be constructed between North Pole and the Carney Substation. The lack of a new line would put approximately 6,500 customers at risk of increased outages and longer periods of down time. In addition, new customer demand would not be able to be met.

3.0 Affected Environment

Chapter 3 describes the existing environment and resource components that would be impacted by the proposed project and the alternatives. The resources discussed in this section are presented as a baseline for comparisons of environmental consequences. Resources discussed in the section are as follows:

- Physical Resources, which includes general site location and topography, geology and soils, climate and air quality, ground and surface water, wetlands, and infrastructure improvements;
- Biological Resources, which includes vegetation, wildlife, fish, threatened or endangered species;
- Cultural Resources including Archeological or Historical Resources;
- Recreational Resources; and
- Socioeconomic Factors.

3.1 Physical Environment

Eielson AFB encompasses approximately 19,790 acres and is isolated from major urban areas. The portion of Eielson AFB that contains the project areas associated with the proposed action and alternative 1 lies on the abandoned floodplain of the Tanana River, with elevations ranging from 525 to 550 feet above Mean Sea Level (MSL). The surface of the floodplain is relatively smooth and slopes gently downward to the northwest at a gradient of about 6 feet per mile.

3.1.1 Geology

The area in the vicinity of Eielson AFB was not glaciated during the last ice age. The majority of the subsurface geologic formations of the central plateau of Alaska are primarily from the Permian and Devonian periods of the Paleozoic era. The hills to the northeast of the base are composed of Precambrian and Paleozoic-age schists, micaceous quartzites, and subordinate phyllite and marble. These formations have been locally intruded by a series of Cretaceous lower tertiary intrusions.

3.1.2 Soils

Soils in the Tanana River Valley consist of unconsolidated silty sands and gravels, organic and sandy silts, and clays. Floodplain soils nearest the active channels are sandy with a thin silt loam layer on the surface. On higher terraces, the soils become predominately silt from the Salchaket series. Along older river terraces, silt loam soils, which contain significant organic components, often dominate. These soils tend to be cold and wet and are generally underlain by permafrost. Approximately two-thirds of Eielson AFB is covered with soils containing discontinuous permafrost. This preponderance of permafrost soils contributes to the large percentage of vegetated wetlands occurring on undeveloped base lands.

3.1.2 Climate and Air Quality

3.1.2.1 Eielson has the northern continental climate of Interior Alaska, which is characterized by short, moderate summers, long cold winters, and low precipitation and humidity. The mean annual precipitation in the area is 11.2 inches, much of which comes as snow. The coldest month is January, with an average temperature of minus 10.3°F and an average minimum temperature of minus 19.2°F; the warmest month is July, with an average temperature of 61.7°F and an average maximum of 71.9°F. The minimum amount of daylight is shortest in December with 3 hours 47 minutes of available daylight.

3.1.2.2 May and June have the highest winds, with average wind speeds of 7.7 and 7.2 miles per hour, respectively. During most of the year, the prevailing wind direction is from the north at an average of 5.15 miles per hour. However, in June and July, the wind direction is typically from the southwest. Wind speed can vary with elevation and roughness of surrounding terrain.

3.1.2.3 Air quality is generally good at Eielson . Although portions of the Fairbanks North Star Borough, of which Eielson is also a part, are in non-attainment for carbon monoxide (Fairbanks and North Pole), Eielson is far enough south to not be included or affected. The Clean Air Act designates areas as attainment, non-attainment, maintenance, or unclassified with respect to their compliance with National Ambient Air Quality Standards (NAAQS). Non-attainment and maintenance areas are locales that have recently violated one or more of the NAAQS and must satisfy the requirements of State or Federal Implementation Plans (SIPs or FIPs) to bring them back into conformity with the applicable air quality standards. Eielson is located in an *unclassified* area, and therefore activities that generate emissions do not need to satisfy the requirements of the EPA ruling *Determining Conformity of General Federal Actions to the State or Federal Implementation Plans.*

3.1.3 Groundwater

Eielson AFB is located over a shallow unconfined aquifer. The aquifer is approximately 250 feet thick, extends to bedrock, and has a regional gradient of about 5 feet per mile flowing to the north-northwest. The water table varies from the surface in adjacent wetlands to 10 feet below ground level in developed areas. The base uses the local aquifer for its drinking water and monitors groundwater quality in a number of locations as part of its Installation Restoration Program. Localized contamination of the aquifer has been identified in the industrial area of the base, but the overall quality of groundwater at Eielson AFB is good.

3.1.4 Surface Water

3.1.4.1 Aquatic bodies on Eielson AFB include streams, wetlands, and lakes. There are approximately 28 miles of streams; 10,133 acres of wetlands; 12 lakes (Lilly Lake is natural and the remaining 11 are man-made); 80 ponds (10 naturally-occurring and 70 man-made) totaling 560 acres; and 6,770 acres of floodplains on the main base. The man-

made lakes and ponds were created during the excavation of gravel deposits for use as fill material for construction projects on base. Surface drainage on Eielson AFB is generally in a north-northwest direction and parallel to the Tanana River. Five streams flow through the base and discharge into the Tanana River via Piledriver Slough.

3.1.4.2 Approximately 51 percent, or 10,133 acres, of Eielson AFB is classified as wetlands, with 9,391 acres being vegetated wetlands and the remainder being lakes, ponds, and streams. Wetlands and low gradient alluvial streams comprise most of the surface water resources on Eielson AFB, with wetlands dominating the low-lying areas within and surrounding the installation. Most wetland areas were created as a result of surface waters becoming trapped in the thawed layer over the permanently frozen subsurface (permafrost). Flood periods tend to occur during spring snowmelt and during the middle to late summer, when heavy rains or warm air quickly brings glacier fed mountain streams to flood capacity. Several lakes and extensive wetlands surround the airfield in the cantonment area. Among these are Bear, Polaris, Moose, Hidden, Pike, Rainbow, Scout, Grayling, and Tar Kettle lakes. Creeks that can be found in the vicinity of the airfield include French and Moose creeks.

3.1.4.3 Piledriver and Garrison sloughs are the two largest streams in the vicinity of the airfield. Piledriver Slough, which discharges into the Tanana River, is located along the western edge of Eielson AFB and approximately 4,000 feet west of the airfield and parallel to the runways. Approximately 12 miles of Piledriver Slough occurs on Eielson AFB. The slough receives no runoff from the urban developed area of the base and has good water quality.

3.1.5 Noise

Aircraft generate by far the most noise on Eielson AFB. Noise levels associated with aircraft during flying hours can exceed 80 decibels (dB) in the vicinity of the flight line; however, the decibel level drops off to a maximum of 70-dB in the closest residential area, Moose Creek, just north of the base. A 65-dB level is not recommended for housing areas by EPA standards (Noise Effects Handbook, US EPA, 1981). Construction noise is potentially another source of noise, but it is not considered to be a concern due to its temporary nature and relatively low dB level. **Figure 3-1** is a chart that provides a scale of noise levels associated with typical daily activities.

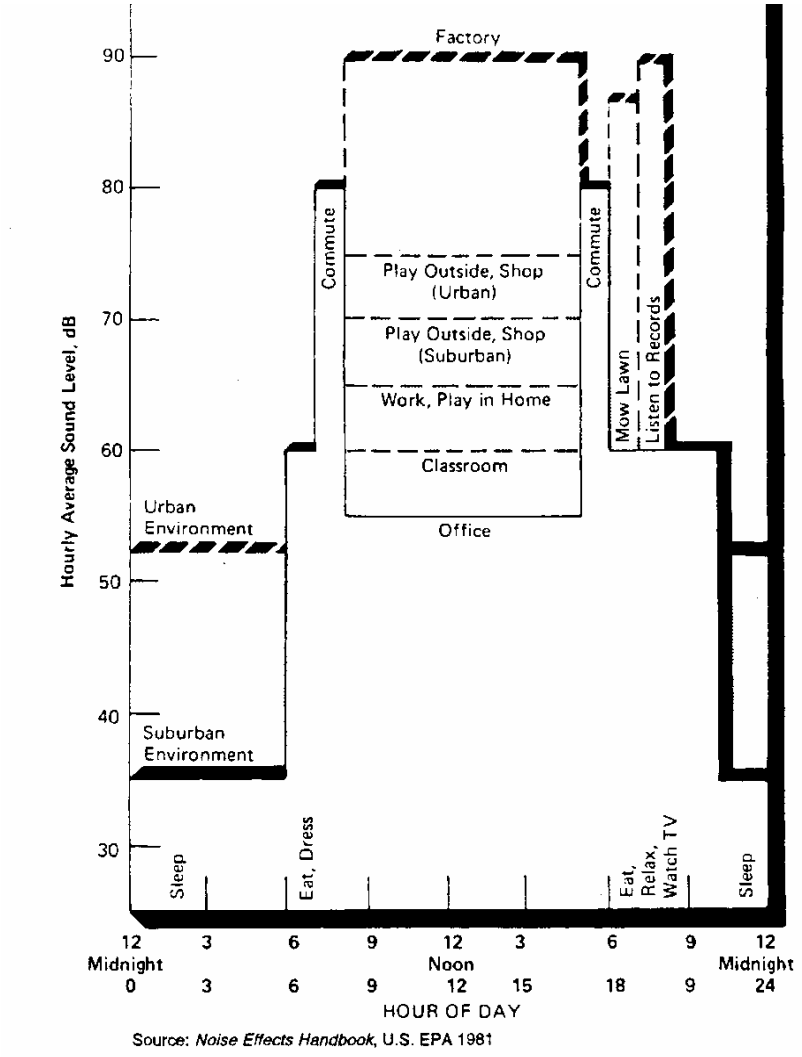

Figure 6 - Noise Levels

3.1.6 Wetlands

3.1.6.1 Wetlands are a predominant physical feature of Eielson AFB lands. For the most part, the developed portion of the base, and the elevated hills to the east, are classified as uplands. However, some portions of the developed area of the base, as well as major portions of the undeveloped areas, are designated 404 wetlands by the Corps of Engineers. Based on current delineation figures for wetlands on Eielson AFB, 79 percent of the undeveloped portions of the base are wetlands. This includes 10,197 acres of vegetated wetlands and 723 acres of lakes, ponds, and streams. Detailed descriptions of wetland types occurring in the alternative route areas is provided in Section 3.5 of GVEA's EA.

3.1.6.2 Wetlands in the vicinity of the proposed project area are a combination of wetland types and include lowland needleleaf forest wetlands (predominant black spruce), riverine wetlands (Piledriver Slough), shrub tussock meadow wetlands (alder/dwarf birch), and lacustrine open water ponds and lakes.

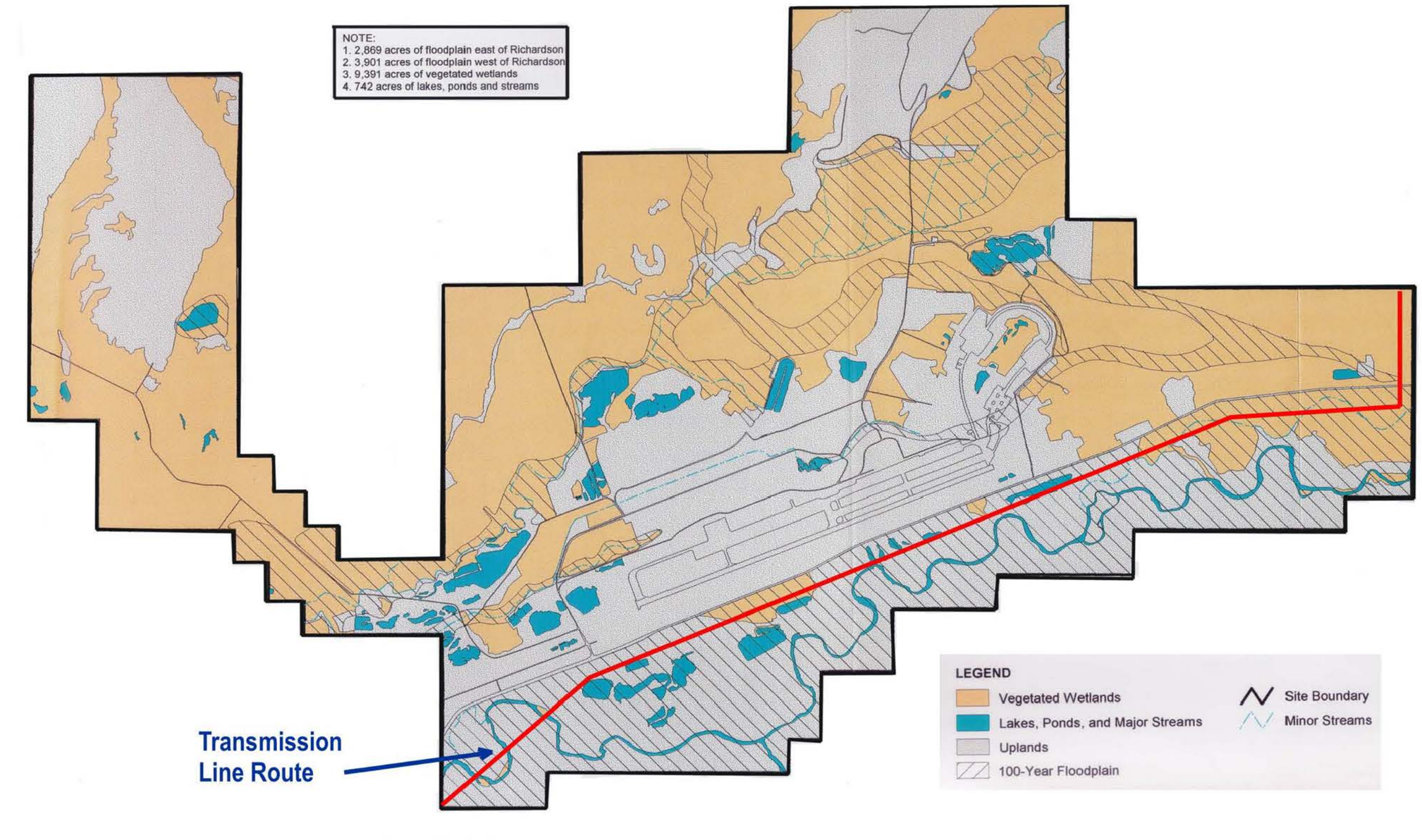
NOTE:
1. 2,869 acres of floodplain east of Richardson
2. 3,901 acres of floodplain west of Richardson
3. 9,391 acres of vegetated wetlands
4. 742 acres of lakes, ponds and streams
Transmission Line Route
LEGEND
Vegetated Wetlands
Lakes, Ponds, and Major Streams
Uplands
100-Year Floodplain
Site Boundary
Minor Streams

Figure 7

3.1.6.3 Most of the proposed route across Eielson lands will not impact wetlands. There are some areas however that will be impacted. **Figure 7** shows the distribution of wetlands on Eielson lands in relation to the proposed transmission line route.

3.2 Biological Resources

3.2.1 Vegetation

3.2.1.1 Due to the variations in the surrounding terrain, the plant communities vary due to slope orientation, changes in elevation, and fire history. Changes in vegetation are also influenced by spatial differences in soil temperature, moisture content, soil fertility, and presence of permafrost. The major plant community types include white and black spruce coniferous forests; paper birch and poplar broadleaf forests; mixed coniferous-broadleaf forests; needleleaf and tall scrub-shrub and herbaceous wetlands. The two most common types are upland mixed spruce/broadleaf forest and black spruce lowland forest. Additional discussion of vegetation types is provided in Section 3.7 of the *GVEA EA*.

3.2.1.2 The Black spruce lowland forest tends to occur on poorly drained sites underlain by permafrost. Black spruce forest is common in low-lying areas, drainage basins, and north-facing slopes. Black spruce occurs in closed canopy stands and as scrubby open stands of dwarf trees. Other species commonly occurring in this forest type include tamarack, blueberry, low-bush cranberry, Labrador tea, and feather moss. Closed canopy black spruce forest tends to return to its original composition after fire (Viereck et al., 1992). In the absence of fire, closed canopy black spruce may transition into scrubby open stands of black spruce as the moss layer thickens. A thicker mat of moss tends to better insulate soils, causing the permafrost level to rise and the soil to be colder and wetter over time.

3.2.2 Wildlife

3.2.2.1 Wildlife species in the surrounding areas are typical of those found in interior Alaska. Large mammals that are likely to be found in nearby habitat include moose, red fox, black bear, snowshoe hare, red squirrel, lynx, marten, wolverine and coyote. Gray wolves are transient to the area.

3.2.2.2 The surrounding Tanana Valley provides breeding habitat for a wide variety of migratory bird species. Bird species found on Eielson AFB include spruce grouse *(Dendragapus canadensis*), ruffed grouse (*Bonasa umbellus*), northern goshawk (*Accipiter gentilis*), sharp-shinned hawk (*Accipiter striatus*), great horned owl (*Bubo virginianus*), red-tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*). During winter, willow ptarmigan (*Lagopus lagopus*) and rock ptarmigan (*Lagopus mutus*) are common on Eielson AFB. Over 20 species of waterfowl, including geese, ducks, loons, grebes, and scoters use aquatic habitats found on the installation. Non migratory birds include ravens, jays, chickadees, songbirds, woodpeckers, grouse, and ptarmigan. Raptors include bald and golden eagles, hawks, kestrels, great horned owls, boreal owls, and hawk owls.

3.2.2.3 Recreational hunting of big and small game species in non restricted areas is an important activity. Big game species include moose and black bear. Hunting of small game includes snowshoe hare, red squirrel, grouse, and ptarmigan.

3.2.3 Fish

3.2.3.1 French Creek, Moose Creek and Piledriver Slough are shallow, gravel bottomed streams that run with clear water for most of the year. The creeks contain northern pike, arctic grayling, whitefish, chum salmon, burbot, and rainbow trout. Little information is available about fish and fish habitat in tributaries of French Creek and Moose Creek.

3.2.3.2 The Alaska Department of Fish and Game stocks five lakes and one stream on Eielson AFB: Grayling Lake, Hidden Lake, Polaris Lake, 28 Mile Pit, Moose Lake, and Piledriver Slough. Fish stocked by the Alaska Department of Fish and Game include rainbow trout, arctic grayling, arctic char, silver salmon, chinook salmon, chum salmon, and northern pike. There are no known federally listed threatened or endangered fish species, fish species proposed for listing, or critical fish habitats on Eielson AFB.

3.2.4 Threatened or Endangered Species

3.2.4.1 There are no known threatened or endangered species within the proposed project area. However, the proposed project site is within the range of the American peregrine falcon (*Falco peregrinus anatum*), which was removed from the list of threatened and endangered species in 1999. Peregrine falcon's nests have been located on the Salcha and Goodpasture River drainages to the southeast, and the Charley and Yukon River drainages to the northwest of the proposed project area. The American peregrine falcon is known to nest in the Salcha River Bluffs located approximately 15 miles to the south. Another federally delisted subspecies, the Arctic peregrine falcon (*Falco peregrinus tundrius*), is not known to nest within several hundred miles of the area. The only occurrence of either subspecies in the proposed project area is transitory during migration periods.

3.2.4.2 Due to its recent recovery from endangered status, the U.S. Fish and Wildlife Service will monitor the American peregrine falcon on a regular basis for the next decade. If survey data indicate a reversal in recovery, the American peregrine falcon could be emergency listed at any time. Therefore, the Fish and Wildlife Service recommends agencies avoid impacts to peregrine falcons to assure a healthy long-term population.

3.2.4.3 No federal or state listed threatened or endangered plant species have been listed as occurring within Eielson property.

3.3 Cultural Resources

In 1994, Eielson developed a predictive model for identifying areas on base with a high probability of prehistoric significance. This model (Mason et al., 1994) was designed to provide baseline information for planning and land management on base lands. The model incorporated a variety of information into predictions of locations and potential

characteristics of historic properties. The predictive model was used as a basis for conducting an extensive field survey of high probability areas. The field survey, summarized in a report entitled *Archaeological Survey and Assessment of Prehistoric Cultural Resources on Eielson Air Force Base, Alaska Management Summary* (Gerlach and Bowers, 1996), was conducted within three high probability areas. However, no significant prehistoric archeological or historic sites were found in any of the three high probability areas. In addition, the area through which the transmission line would be routed also has no identifiable cultural resources.

3.4 Recreational Resources

Eielson lands are used extensively for outdoor recreation. Popular forms of recreation include hunting, trapping, off-road vehicle use, and snowmobile use. Residents of Eielson are the primary users, mostly due to the security restrictions placed on non-essential personnel entering the base. Hunters, fishermen, and trappers are required to attend a safety briefing and to obtain a permit prior to using military lands.

4.0 Environmental Consequences

Chapter 4 will provide scientific and analytic information relative to the probable consequences (impacts and effects) of the proposed project on selected environmental resources. Discussions of impacts that could result from other alternatives are provided for in Chapter 4 of the *GVEA EA* and will not be further discussed in this document.

4.1 Physical Resources

4.1.1 Geology, Soils, and Permafrost

4.1.1.1 Some areas will be cleared of vegetation to provide the needed work space to install and maintain the power transmission line. Soils would be cleared of vegetation or disturbed during installation of wood-pole structures. Approximately 45 pole structures would be installed on Eielson lands. Each pole would disturb approximately 12.5 square feet of ground, with the total disturbance of soils of less than 0.025 acres.

4.1.1.2 Areas where vegetation is cleared and the vegetative mat is disturbed could experience erosion of soil. However, best management practices such as silt fences and placement of hay bales will keep these impacts to a minimum. It is also possible that soil traversed by heavy equipment during non-frozen soil periods will compact. Most impacts to soils however, will be minor and of relatively short duration.

4.1.2 Climate and Air Quality

Air quality may be temporarily diminished during construction due to emissions produced by construction equipment. Airborne particulate matter in the form of dust emissions may also increase if the construction occurs during dry summer months.

4.1.3 Ground and Surface Water

No impact to ground water is expected from construction of the proposed transmission line. Minor impacts to surface waters could occur during construction of the line's right of way and installation of pole structures. Most, if not all water bodies would be avoided by spacing the poles so that they miss these areas. Impacts to surface water will be further reduced by limiting certain construction activities to winter when most surface water areas are frozen.

4.1.4 Wetlands

Impacts to wetlands will occur in those areas indicated in **Figure 7** as being wetlands. Impacts will likely result in disturbed vegetation for right-of-way clearing, compressed soils from vehicle traffic, and excavated and backfilled areas where towers will be installed. Of the approximately 8.5 miles that the proposed route traverses Eielson lands, close to 2.75 miles of it is in wetlands. Most of these wetlands occur in the southern

portion of the route. The proposed route for the transmission line would impact the least amount of wetlands of any of the six routes considered.

4.1.5 Floodplains

The entire length of the proposed GVEA transmission line route would pass through areas that lie in the 100-year floodplain. Clearing for the line's right-of-way and installation of the pole structures would not alter/impact the existing function of the floodplain in this area. Placement of overhead transmission lines in floodplains have been acknowledged as appropriate uses of floodplains under Executive Order 11988.

4.2 Biological Resources

4.2.1 Vegetation

Under the proposed action existing vegetation would be impacted as part of the clearing of the transmission line right-of-way. The extent to which this would occur is difficult to quantify, however it is anticipated that most of the first five miles of its proposed path on Eielson lands will have some or all of the 100-foot wide right-of-way cleared. The last 2.75 miles (mostly black spruce needle-leafed forest) is not densely treed and will not require extensive clearing. Since there is an abundance of similar vegetation types along the proposed project route, the loss of vegetation would likely not have a significant impact on availability of forested habitat in the area.

4.2.2 Wildlife

4.2.2.1 Loss of forested habitat due to tree removal in the power line corridor would likely have some net benefit to wildlife such as moose and black bear. The cutting of large mature aspen, balsam poplar, and birch trees causes an increase in root suckers. Creating a clearing for the transmission line may benefit other species such as snowshoe hare, red fox, lynx, and raptors by providing edge habitat. Young saplings and suckers are an important food source for moose and invading grasses and shrubs are a source of food and cover for voles and mice. Removal of standing dead trees however, could decrease nesting habitat for cavity nesting birds, and feeding habitat for birds that utilize insects. No direct impacts to wildlife are anticipated with the proposed construction of the transmission line other than the possibility of minor disruptions to wildlife movement as typically found during the construction phase of projects.

4.2.2.2 Electrical lines and utility poles have the potential to result in avian fatalities due to electrocution and bird strikes with utility poles. Most bird electrocutions occur on low voltage distribution systems where the spacing of the electrical conductors is less than 7 feet. The closer spacing is a hazard to raptors and other large birds because their body size and wingspan are big enough to span the distance between the conductor wires, completing an electrical circuit. Another major source of bird electrocution results from pole mounted transformers. A bird landing on top of a transformer can easily contact an energized jumper wire while its feet are on the grounded transformer. Mitigation methods have been

incorporated into the design to include adequate spacing between phase conductors and insulating caps on the conductors. 

4.2.2.3 No other impacts to the localized wildlife habitat are anticipated other than the possibility of minor disruptions to wildlife movement as typically found during the construction phase of projects.

4.2.3 Fish

The implementation of the proposed action could have some impact on fish habitat if certain construction practices are not implemented. The proposed route for the transmission line does cross a known fish stream (Piledriver Slough), but construction methods such as working during winter to avoid open water areas, should minimize most, if not all, impacts to aquatic habitats. Care will be taken to remove as little riparian vegetation as possible during installation of the line. If ground is disturbed adjacent to stream banks, care should be taken to prevent siltation from occurring. In most instances, support poles will be located at least 200 feet from any water bodies.

4.2.4 Threatened or Endangered Species

No known threatened or endangered species inhabit the area and would, therefore, not be impacted by the selection of the proposed action.

4.3 Cultural and Historic Resources

There would likely be no impact to cultural or historical resources from implementation of any of the alternatives. Section 108 (of the National Historic Preservation Act) consultation has been completed by GVEA with the State Historic Preservation Office.

4.4 Recreational Resources

Implementation of the proposed action would likely have no effect on recreational resources. As stated in Section 4.2.2, the project is likely to result in some improved wildlife (browse) habitat and could enhance the opportunity for recreational hunters in the area.

4.5 Socioeconomic Factors

The project area is unpopulated with the nearest residential area located 3 miles away. Additionally, the socioeconomic impacts that might occur as a result of construction of the transmission line is inconsequential relative to the economic benefit that the project's enhanced energy distribution will provide.

4.6 Electromagnetic Fields

The effect of Electromagnetic Fields (EMF) on human health is not well understood and thus no federal agency exposure standard has been set. In 1990, the International Radiation Protection Association concluded that no cancer risk from EMF had been proven and that information gained from studies to date had not been adequate to provide a health risk assessment that could be useful in establishing exposure limits. Until more information is known, the Environmental Protection Agency recommends that electric utility lines avoid being located near populated areas. The proposed routing of the GVEA line avoids population centers.

4.7 Environmental Justice

4.6.1 Environmental justice, as it pertains to the NEPA process, requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. To accomplish these requirements the Air Force must conduct an environmental justice analysis of all potential impacts that may result from the proposed action.

4.6.2 The site of the proposed project is located on federal lands designated for military operations. The closest residential area to this site other than Eielson housing is the community of Moose Creek located approximately 2 miles to the northeast. This residential area does not exhibit characteristics of low-income or minority populations that are not exhibited in the Fairbanks area population as a whole. Similarly, no native claims or allotments are located within a 10-mile radius of the project area. Based on the environmental impacts identified in this EA and on a corresponding environmental justice analysis, it is felt that no disproportionate impact to minority or low-income populations would occur from implementation of this project.

4.7 Cumulative Impacts

4.7.1 Cumulative impact is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Individual actions may result in minor impacts but when taking place over a period of time they collectively may result in significant impacts.

4.7.2 The proposed action would result in impacts to vegetation along 8.5 miles of power line right-of-way. The impacts from this project would be minimal and would not incrementally, by itself or when added to previous impacts, result in cumulatively significant impacts to the environment.

4.8 Unavoidable Adverse Impacts

The unavoidable impacts that might result from implementation of the proposed action would be a limited amount of clearing of vegetation along the power line corridor.

4.9 Relationship of Short-Term Uses and Long-Term Productivity

The short-term use and benefit of the construction of the transmission line will be the increased availability of energy and the improved reliability of the system for those areas for which it would serve. If the transmission line were no longer needed, the line could be removed and the area would eventually be restored to its previous level of long-term productivity.

4.10 Irreversible and Irretrievable Commitments of Resources

Irreversible commitments are those that cannot be reversed, except perhaps in the extreme long-term. Irretrievable commitments are those that are lost for a period of time. There are no irreversible commitments associated with the proposed action. No irretrievable commitments of resources would occur.

4.11 Mitigation

Design considerations that will reduce bird fatalities and best management practices during construction have been incorporated into the project design. Other than these measures, no specific mitigation is proposed or required.

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6.0 Bibliography and Glossary

6.1 Bibliography

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6.2 Glossary

Erosion – The wearing away of soil or organic matter by flowing water or wind.

Footprint – The maximum area required for the firing of weapons or detonation of munitions.

Loess – Unstratified deposits of silt and loam that are primarily deposited by the wind.

Mitigate – To reduce or negate the effects of an environmental disturbance.

Permafrost – Permanently frozen subsoil.

Physiographic – A region containing the same general natural characteristics.

Recharge – Surface water which percolates through porous soils to become part of the groundwater.

Upland – The higher parts of a region or tract of land.

Wetlands – Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support vegetation typically adapted for life in saturated soils conditions.

7.0 Wetlands Permit